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THE WHITE HOUSE
WASHINGTON, D.C.

With 475 billion tons of coal reserves and the production, transportation, and exporting facilities to vastly increase its shipments to the world market, the United States is prepared to make a major contribution to international energy security and stability. U.S. coal can provide the margin of reassurance in a world dependent upon reliable and uninterrupted energy supplies.

Early in my Administration, I announced a comprehensive coal export policy which emphasizes U.S. commitment to be the best, most dependable source of coal on the world market and to remove any obstacles to the export of U.S. coal.

To translate this policy into reality, the Department of Commerce has embarked on a mission of informing our overseas trading partners of our determination to implement that policy and of the depth of our commitment.

I invite you to meet with our trade representatives. I am confident they can give you full assurances that the U.S. coal and related industries are ready, willing, and able to fully meet your energy needs now and in the future.

Ronald Reagan

Ronald Reagan

THE SECRETARY OF COMMERCE

As the nations of the world search for secure and dependable sources of energy, the United States stands ready to meet much of that need through its abundant and readily available coal resources.

President Reagan has given the Department of Commerce the responsibility for seeing that our government regulations are consistent with the Administration's Coal Export Policy and that the readiness of the U.S. coal and related industries to supply the needs of our friends and trading partners is widely known.

The Coal Interagency Working Group, under the direction of Assisant Secretary of Commerce William H. Morris, Jr., is working to assure that nothing interferes with our nation's ability to deliver as much coal as is required to meet global energy security needs.

The United States is prepared to demonstrate the capacity, reliability, and commitment of U.S. industry to supply any projected level of demand and the availability of new technology for the clean and efficient use of this resource. We want to maintain our historic record of uninterrupted coal shipment and our willingness to have foreign participation in our industry.

I hope this book will be of assistance to you in answering any questions you have about the capabilities of the U.S. coal industry.

Malcolm Baldrige

Malcolm Baldrige

coal U.S.A.

U.S. DEPARTMENT OF COMMERCE
International Trade Administration

October 1982

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Foreword

Affordable, dependable energy is a major concern for all industrialized nations. Events of the recent past clearly illustrate the danger of relying on a single source of supply—particularly if it is subject to political and economic manipulation. As a historically dependable source and supplier of coal, the United States can make a significant contribution to the economic health and energy security of our friends and trading partners and is committed to fulfilling that contribution.

The United States has abundant, easily recoverable coal reserves. It has a transportation system capable of handling much more coal than it does now. Seaport storage and loading facilities are being upgraded and will be more than sufficient for any foreseeable level of demand. The U.S. Congress and the Administration are working on ways to provide the deep navigation channels required by the larger ships coming into increasing use.

The United States is also committed to enhancing its reputation as a reliable supplier of coal to the world market. For more than 30 years, the United States has exported this valuable commodity without interruption.

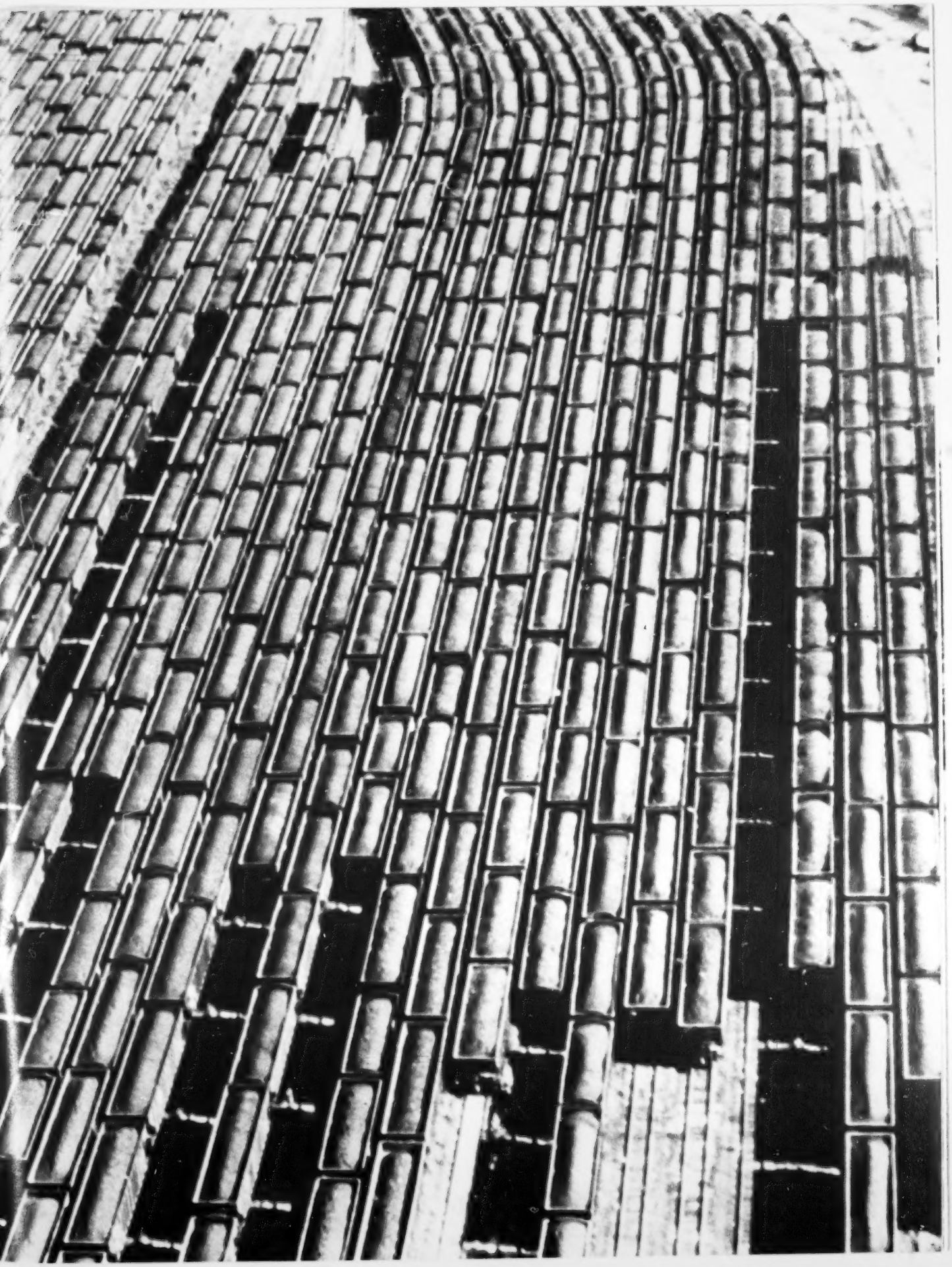
President Reagan reaffirmed this commitment last year through the Administration's Coal Export Policy. Some of the key elements of that policy are:

- The U.S. Government's role is not to subsidize coal exports, but to expedite them.
- The U.S. Government will reduce obstacles to coal exporting created by overregulation and red tape.
- The U.S. Army Corps of Engineers will improve its ability to expedite permits and the construction of ports and waterways.
- All U.S. Government agencies will ensure that their policies do not impede coal export needs.
- The United States welcomes foreign participation in financing coal and related projects.

The United States wants to assure its potential customers that it seeks their business, that it can meet their needs, and that long-term purchase of U.S. coal is in the mutual best interests of all parties.

W. H. Morris Jr.

William H. Morris, Jr.



SECTION ONE

Resource Overview

The critical importance of coal as the major alternative to oil is now well known and accepted throughout the world. Spiraling oil prices over the last 8 years have had a serious detrimental effect on national economies, particularly those countries with heavy dependence on imports. Coal offers a secure, reliable, and less expensive energy source to return these nations' economies to a period of growth and prosperity.

In early 1980, the 16-nation World Coal Study report concluded that coal can provide two-thirds of the additional energy necessary to fuel the Free World's economic growth over the next two decades. Other more recent studies, such as the International Energy Agency (IEA) Coal Review, have reached the same conclusions. According to that report, coal use in IEA countries will increase from 1.1 billion metric tons in 1980 to 1.6 billion metric tons by 1990, an increase equal to the entire coal production in the United States just one decade ago. This increase in coal use is expected to continue at an approximate 4 percent annual rate through the remainder of the century.

The United States, as an international coal production leader, will play a primary role in meeting the coal demands of the next 20 years. By most estimates, coal production in the United States will more than double in the next two decades to meet domestic demand and serve the new steam coal requirements of customers abroad.

The United States has long been an important coal exporter, with 80 to 90 percent of shipments being metallurgical grade coal used by the world's steel industry. International interest is now turning to steam coal, which is used to fire electric utility and industrial boilers. In 1979, steam coal trade began to rise sharply and is expected to account for a growing percentage of world coal trade in future years and almost all of the expected increase in exports of U.S. coal.

The prospect of greatly expanded coal use worldwide and the pivotal position of the United States in meeting this demand has raised a question in the minds of customers. Can the United States deliver and at a reasonable cost?

The answer to this question is an unequivocal, uncompromising YES.

The Reserve Base

By any criteria, U.S. coals represent a vast energy resource. The U.S. Geological Survey has identified 1.5 trillion metric tons of coal resources in the United States and the potential resource base may be as high as 3.6 trillion metric tons. U.S. coal resources represent about 25 percent of the world's total.

There are about 431 billion metric tons of economically recoverable reserves spread throughout the major coal-producing regions—Appalachia, the Midwest, and the West. The overwhelming bulk of the total reserve base is bituminous and sub-bituminous. Approximately 6.6 billion metric tons of the reserve base are anthracite located in Pennsylvania, and 39.9 billion metric tons are lignite located primarily in North Dakota, South Dakota, and Texas. With improvements in mining technology, this enormous recoverable reserve base will become even larger.

These reserves, which are enough to last for hundreds of years, provide a choice of quality, quantity, location, and transportation mode best suited to the customer's individual requirements. The reserves assure that specific quality requirements can be met at a reasonable

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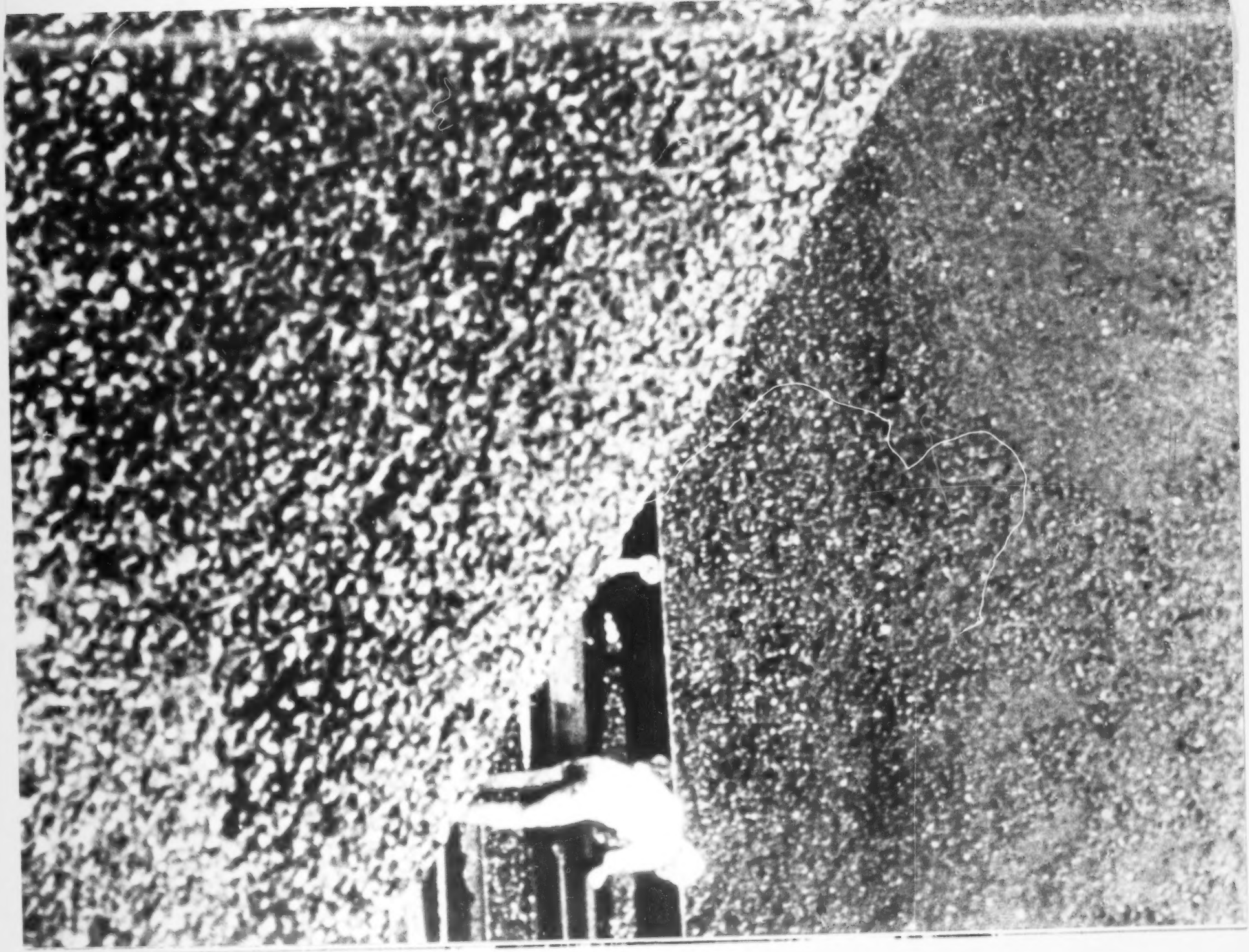


"... 83 million metric tons of new terminal capacity is under construction and 308 million metric tons of additional capacity are being planned."

and relatively stable mine-mouth price on a reliable basis over a long-term contract.

U.S. Coal Industry

The U.S. coal industry is unique in the world. It is exceptionally diverse and competitive. There are over 3,000 production companies operating over 5,000 separate mines. No single company produces even 10 percent of the total production, and the top 25 companies produce only 50 percent of the total production.

While the number of coal exporters is only 40 or 50 companies, these exporters are also buying coal from most of the 3,000 producing companies. These companies are competing not only against coal from Australia, Poland, South Africa, and Canada, but also against each other. Therefore, the prices the exporters quote reflect the competition between all the producing companies.

Unlike some countries, U.S. coal producers do not differentiate between domestic and export sales. This is because the export of coal in the United States is completely free from governmental quotas, regulations, and restrictions. Therefore, a U.S. coal producer only has to consider which potential customer will provide the best price and security for the desired quantity of coal. Depending on the circumstances, in many cases the export price is actually lower than the domestic price on an f.o.b. mine basis.

This competition between coal producers is encouraged by U. S. Government policy. Our government, while supporting increased exports, does not interfere with the operation of this free marketplace. Whatever agreements are made between the coal buyer and coal seller are firm and supported without review or approval by any entity.

Although 747 million metric tons were mined in 1980, actual mining capability is much higher. During the last quarter of 1981, the industry produced coal at an annual rate of almost 820 million metric tons, and proven mining capacity is in excess of 860 million annual metric tons. An additional 780 million annual metric tons of new and replacement coal mining capacity is presently scheduled to be brought on line over the next decade.

Total U.S. coal production in 1980 was a record 747.2 million metric tons and, despite a 72-day contract strike, production nearly equaled that in 1981. Though a large percentage of annual coal production comes from mines east of the Mississippi River, in recent years western production has increased its share of total coal production, rising from 28.5 percent in 1979 to 30 percent in 1980, and to 33 percent in 1981. By the end of the decade, it is estimated that western production will account for about 37 percent of total production.

With the increase in production in the West has come an increase in surface mine production. Fifty years ago, when most coal mining was done by manual labor, underground mines accounted for 96 percent of all the coal produced in the United States each year. This slowly changed over the years, and in 1981 surface mines accounted for almost 60 percent of annual production. Almost 160 billion metric tons of the demonstrated U.S. coal reserve base can be recovered through surface mining techniques; 270 billion metric tons of reserves are suitable for underground mining.

Although coal use in the United States is expected to increase sharply over the next decade, substantial quantities will be available for export. Total domestic use will

reach 1.0 billion metric tons in 1990, and exports are forecast to approximate 125 million metric tons.

Clearly, there will be sufficient mining capacity available to supply forecast levels of demand for both domestic use and export. With the advanced planning made possible through long-term contractual agreements, an even larger market demand can easily be met.

Labor Stability

One of the most significant changes that has taken place in the U.S. coal industry in recent years has been the dramatic improvement in labor stability. This improvement is underscored by an 85 percent drop in wildcat strike activity since 1977.

Regarding labor stability and productivity, many of the labor problems encountered during the period from 1971 to 1977 are now under control. There are two important reasons for this: the work force at many mines has grown more mature and experienced, and it is more desirous of maintaining a stable work environment.

The major force behind this stability is due to significant competition between labor forces at the mines. In 1971, 75 percent of the coal production in the United States was by workers belonging to one union—the United Mine Workers of America. Today, the coal produced by that one union is only 50 percent of the total production. About 5 percent is produced by workers belonging to competing unions, and 45 percent is produced by non-union workers. In addition, both management and labor are making an effort to improve labor relations.

The return to labor stability has shown itself in both production and productivity increases. It underscores the commitment by both management and labor not only to remain competitive in the U.S. energy economy, but also to fill a greater role throughout the world.

The results of this commitment are seen, in part, in the improved performance of the U.S. coal industry. Since July 1981, U.S. coal mines have produced at record-high levels. This progress was also accompanied by gains in mining efficiency. Preliminary data (for BCOA-UMWA mines) show that productivity rose over 6 percent during 1981.

Transportation

The inland transportation network in the United States—the railroad system and the inland water system—has and will continue to provide efficient movement of coal from the mine mouth to the nearest port.

Physical rail capacity—the number of hopper cars and locomotives—is more than ample. U.S. carriers have made renewed commitments for system-wide improvements that will ensure fully adequate service for growing coal shipments by rail. Long-term contracts will assure continuation of these improvements.

The rate of coal shipment and the level of service for a particular movement can also be made more predictable through the use of long-term contracts.

The inland waterway system for some coal sources provides an effective, competitive transportation alternative. The river system is now carrying record coal tonnages, and the need to significantly improve our inland waterways by constructing new locks and dams is being addressed by the Federal Government and the industry.

Coal slurry, a competitive form of transportation of coal for both domestic use and for export, is a potential transportation alternative. Legislation to permit construction of long-distance coal pipelines is being considered in the U.S. Congress. This transportation alternative could be in place in some areas by the end of this decade.

Short slurry pipelines, designed to transport export coal offshore to large vessels, could be built today. There are several proposals under consideration by coal and pipeline companies and by overseas customer groups. Use of a short pipeline could significantly reduce total transportation costs.

Port Capacity

A sharp increase in demand for export coal in 1979 and 1980 taxed the capacity of existing coal loading facilities at coastal ports. Congestion at East Coast ports delayed shipments of U.S. coal, and this has caused doubts about the capability of the United States to deliver coal.

Numerous measures were quickly taken by railroads, coal operators, and private terminal operators to increase effective port loading capacity. Temporary use of loading facilities designed for other bulk commodities, use of midstream barge to ship loading, utilization of older, less efficient piers, use of alternative transportation routes, and managerial efficiencies have effectively **doubled** existing coal loading capacity. During the last quarter of 1981, coal was loaded for export at an annual rate of almost 110 million metric tons, and in 1982 port congestion has not been a problem.

Implementation of advanced vessel registration systems at Baltimore and at Hampton Roads has reduced significantly both the number of waiting vessels and the average wait time for those vessels.

While these short-term measures have significantly reduced the cost of importing coal from the United States, adequate long-term capacity is still a concern. To solve the constraint imposed by lack of sufficient physical coal terminal capacity at our coastal ports, private industry is rapidly expanding that capacity through the construction of new coal piers or by the expansion of existing piers. Currently 83 million metric tons of new terminal capacity is under construction and 308 million metric tons of additional capacity are being planned. For instance, the Port of Los Angeles proposes to construct a new coal facility at Terminal Island which will provide an additional capacity of 15 million tons annually.

Conclusion

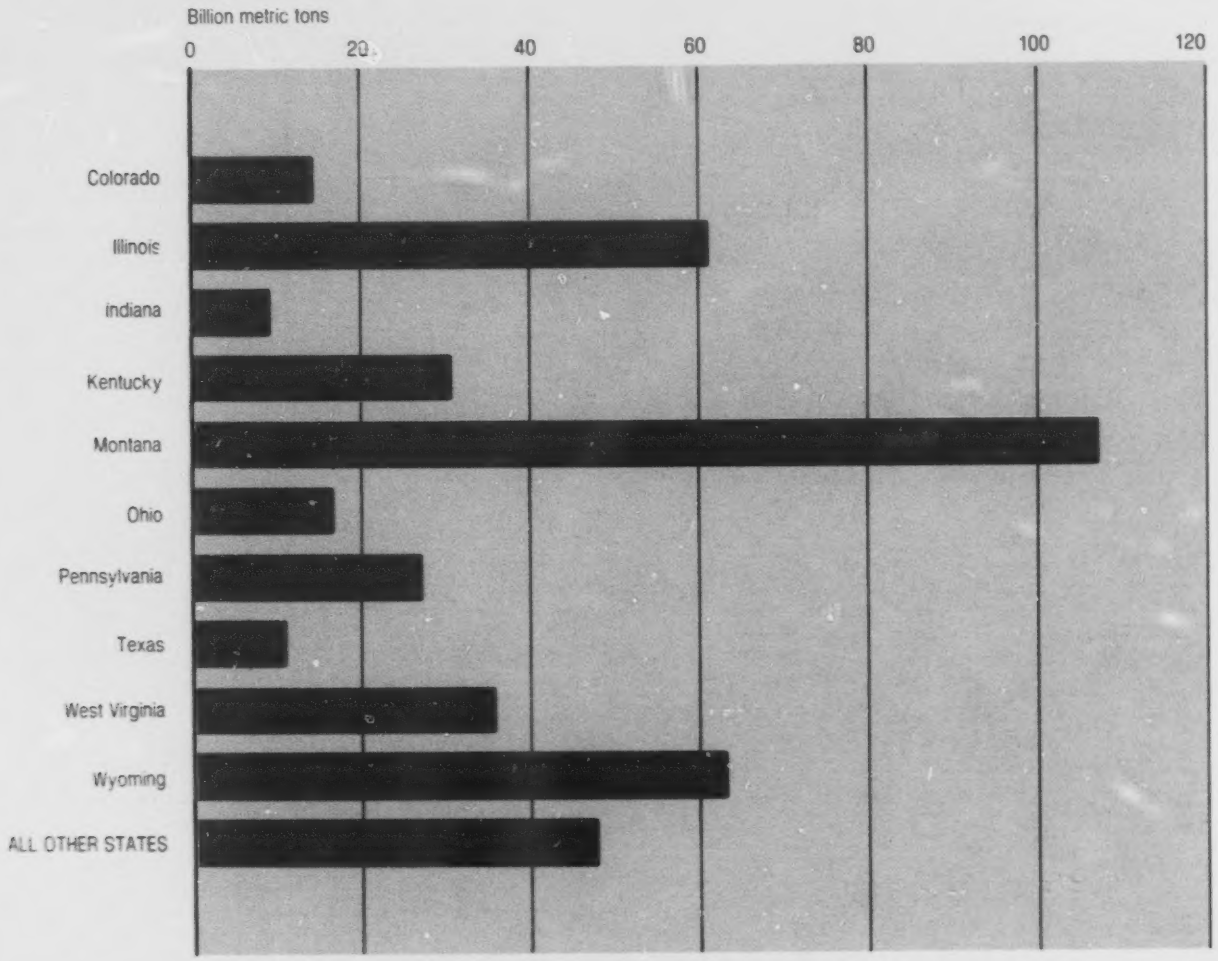
The U.S. coal industry and its related industries are committed to infrastructure improvements to ensure and enhance their ability to compete in the world energy market. A sophisticated production and transportation system is firmly in place. Industry, labor, and government are working together to make coal available to both domestic and overseas markets to assure the availability of a reliable energy source at a constant and reasonable price.

Supported by the transportation system and the stable political climate, the United States has the reserve base, the competitive coal industry with the technology, and the skilled work force, which are all necessary to fulfill the world's coal demand.

TABLE 1. DEMONSTRATED U.S. COAL RESERVES

TOP 10 STATES

RANK	STATE	(billion metric tons) RESERVES	PERCENT OF TOTAL
1	Montana	107.3	25.4
2	Wyoming	63.5	14.8
3	Illinois	61.4	14.3
4	West Virginia	36.3	8.4
5	Kentucky	31.0	7.2
6	Pennsylvania	27.6	6.4
7	Ohio	17.2	4.0
8	Colorado	14.7	3.4
9	Texas	11.5	2.7
10	Indiana	9.6	2.2
	ALL OTHER STATES	48.3	11.2
	TOTAL U.S.	**430.6**	**100.0**

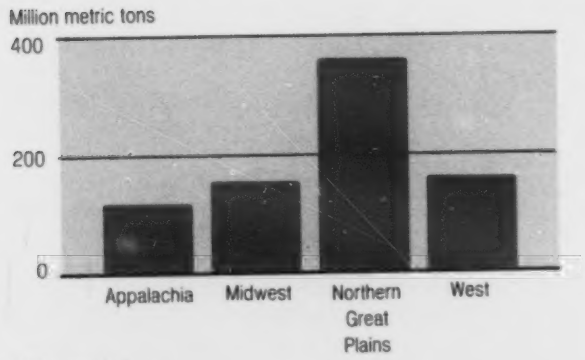


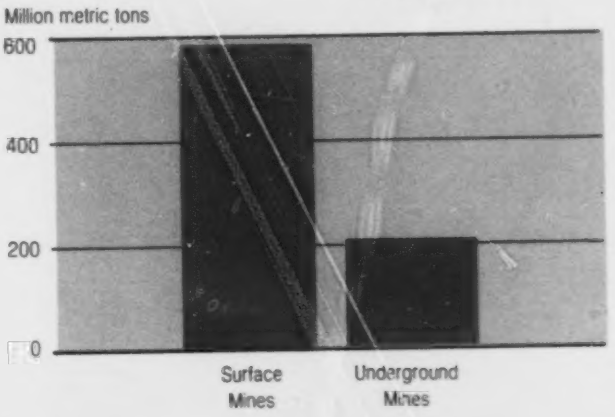
Source: U.S. Department of Energy, Energy Information Administration.

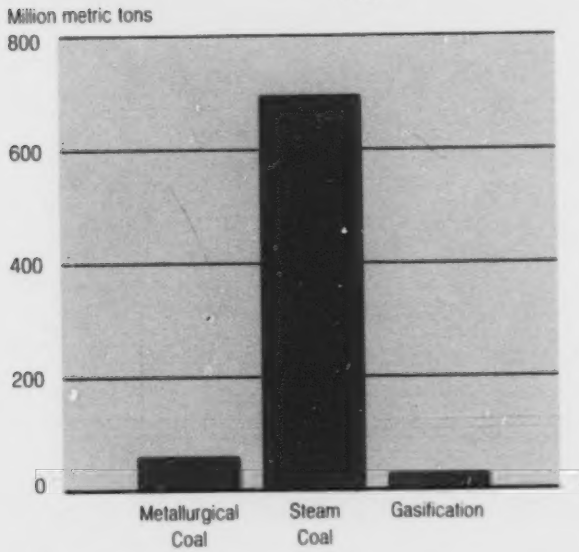
TABLE 2. 1981-90* U.S. COAL MINE EXPANSION PLANS AND CAPACITY ADDITIONS

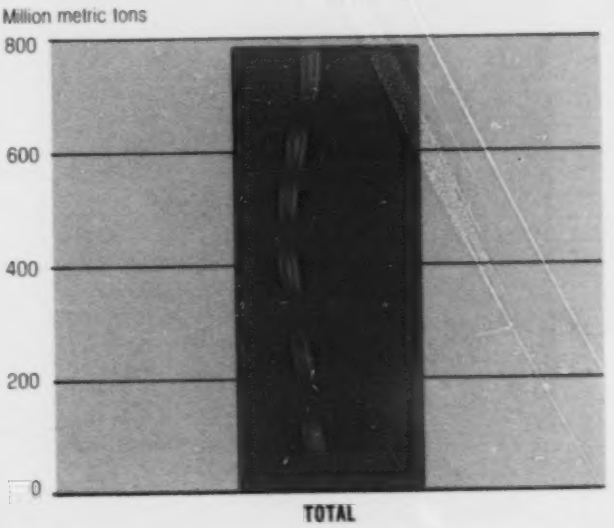
(million metric tons)

By Region:	
Appalachia	115.53
Midwest	151.07
Northern Great Plains	355.53
West	157.38
By Method of Mining:	
Surface	576.19
Underground	203.29
By Principal Market:	
Steam	691.17
Metallurgical	59.82
Gasification	29.49
TOTAL	**780.48**









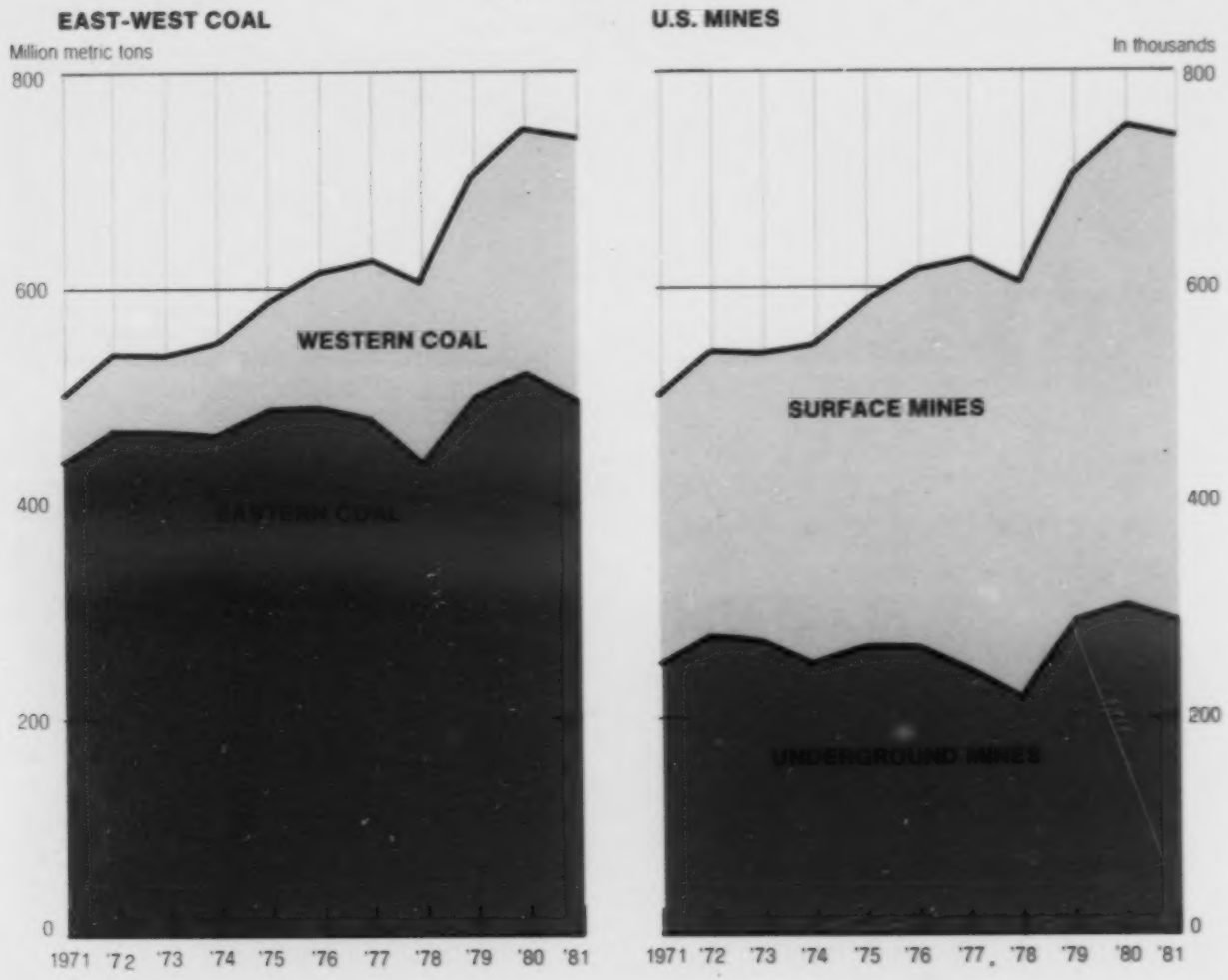
*Includes 53 million metric tons after 1990.

Source: *Keystone Coal Industry Manual*, McGraw-Hill, 1981.

TABLE 3. U.S. COAL PRODUCTION BY REGION AND TYPE OF MINE, 1971-81

(thousand metric tons)

YEAR	TOTAL PRODUCTION	EAST	WEST	UNDERGROUND	SURFACE
1971	500,940	438,969	46,248	250,281	234,936
1972	540,125	467,650	58,366	275,877	250,140
1973	536,816	467,475	69,341	271,569	265,247
1974*	547,401	464,026	83,376	251,571	295,830
1975	588,253	487,615	100,633	265,647	327,606
1976	615,693	492,242	123,451	267,511	348,182
1977	627,177	478,455	143,722	241,266	335,911
1978*	603,393	437,391	166,002	219,699	383,694
1979	704,247	495,453	202,249	290,590	413,656
1980	747,197	519,483	227,714	305,653	441,544
1981*	739,307	495,979	243,328	290,573	448,734

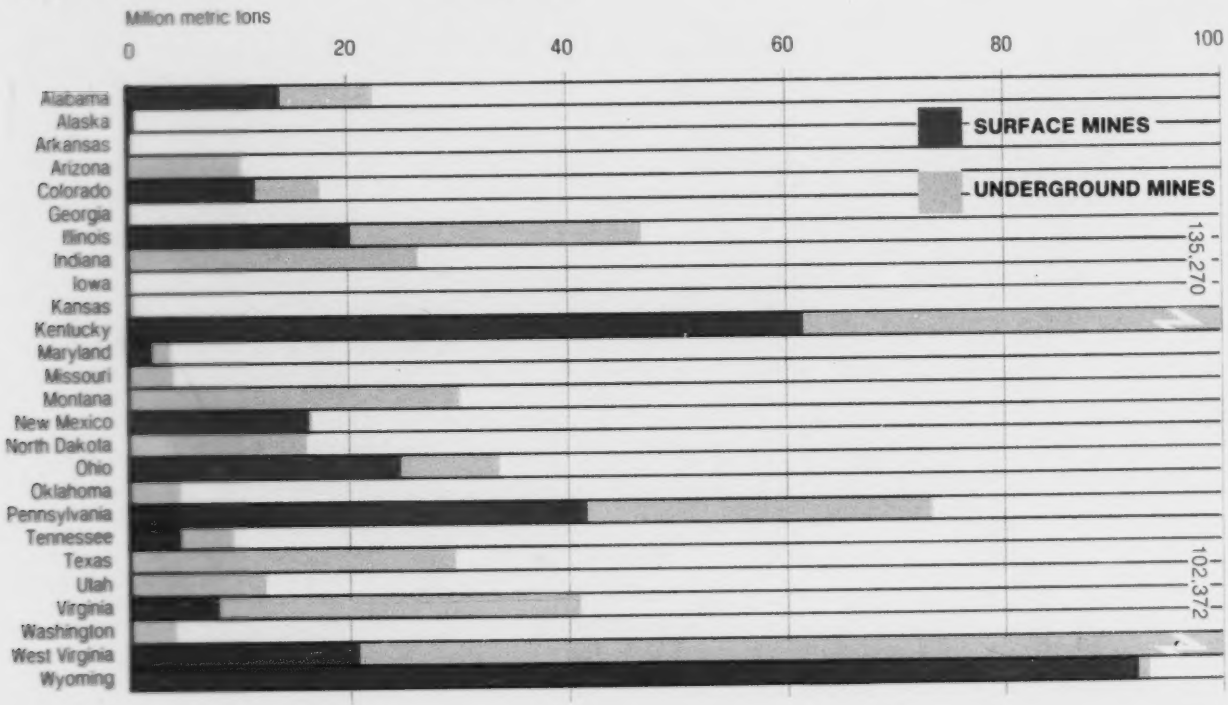


*Coal strike years.

Source: U.S. Department of Energy, Energy Information Administration.

TABLE 4. 1981 U.S. COAL PRODUCTION BY STATE

Rank	State	(thousand metric tons) Underground	Surface	Total	Percent of Total
1	Kentucky	73,502	61,768	135,270	18.3
2	West Virginia	81,278	21,078	102,372	13.8
3	Wyoming	992	92,216	93,208	12.6
4	Pennsylvania	31,443	41,878	73,321	9.9
5	Illinois	26,530	20,403	46,933	6.3
6	Virginia	33,076	8,212	41,289	5.6
7	Ohio	9,029	24,871	34,172	4.6
8	Montana	0	30,290	30,290	4.1
9	Texas	0	29,848	29,848	4.0
10	Indiana	505	26,141	26,646	3.6
11	Alabama	8,403	14,181	22,583	3.1
12	Colorado	5,995	11,729	17,723	2.4
13	New Mexico	718	16,447	17,165	2.3
14	North Dakota	0	16,329	16,329	2.2
15	Utah	12,531	0	12,531	1.7
16	Arizona	0	10,539	10,539	1.4
17	Tennessee	4,764	4,855	9,619	1.3
18	Oklahoma	0	4,764	4,764	0.6
19	Washington	0	4,365	4,365	0.6
20	Missouri	0	4,279	4,279	0.6
21	Maryland	1,727	2,314	4,041	0.5
22	Alaska	0	726	726	*
23	Kansas	0	712	712	*
24	Iowa	64	531	594	*
25	Arkansas	0	254	254	*
26	Georgia	0	5	5	*
TOTAL U.S.		**290,573**	**448,734**	**739,307**	**100.00**



*less than 0.1 precent

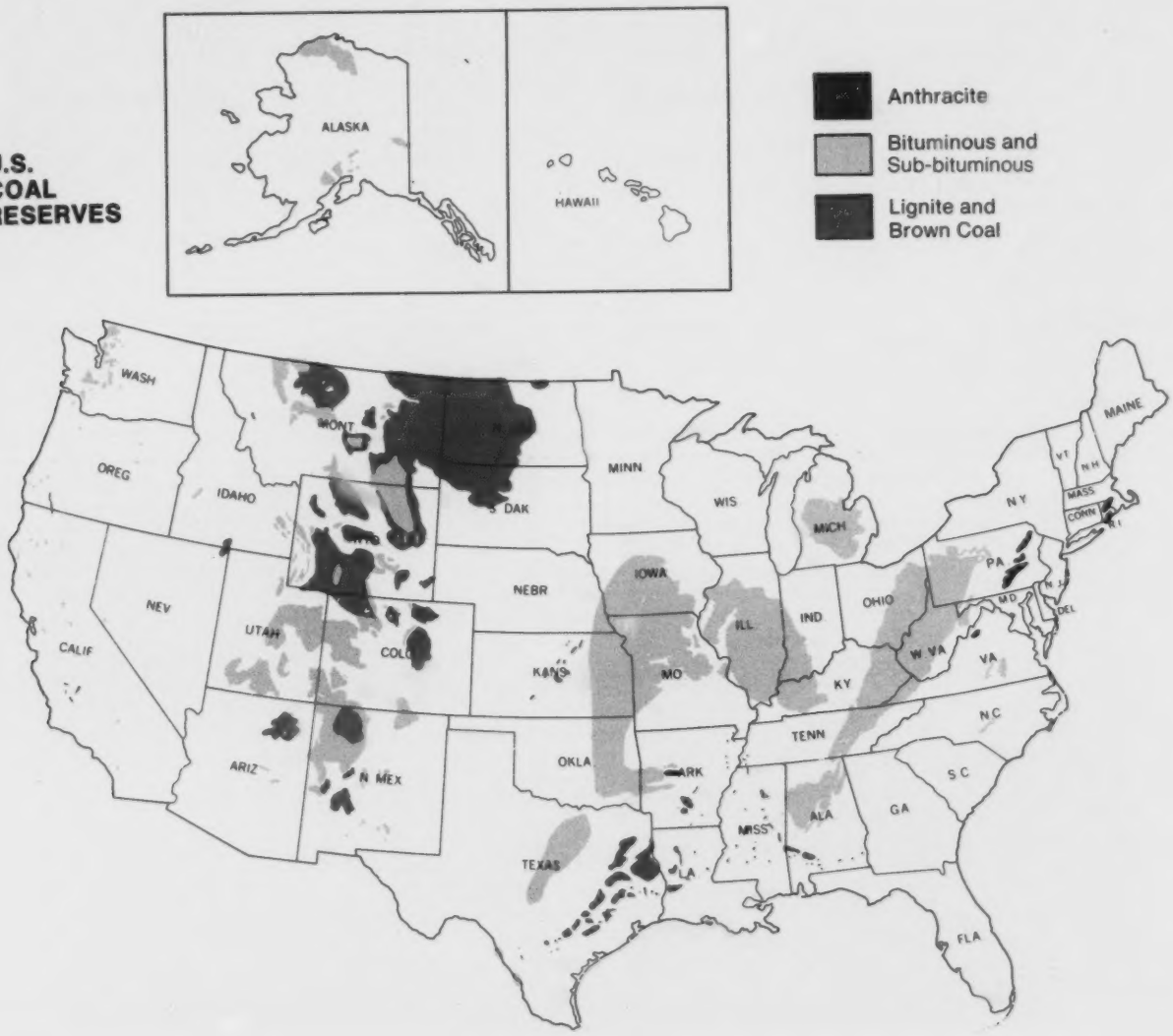
NOTE: Totals may not add due to rounding.

Source: U.S. Department of Energy, Energy Information Administration.

TABLE 5. TOTAL NUMBER OF U.S. COAL MINES, 1971-81

YEAR	UNDERGROUND	SURFACE	TOTAL
1971	2,268	2,881	5,149
1972	1,996	2,883	4,879
1973	1,737	3,007	4,744
1984	2,039	3,208	5,247
1975	2,292	3,876	6,168
1976	2,422	3,739	6,161
1977	2,502	3,575	6,077
1978	2,352	3,821	6,173
1979	2,174	3,437	5,611
1980	2,203	3,359	5,562
1981	2,376	3,609	5,985

U.S. COAL RESERVES

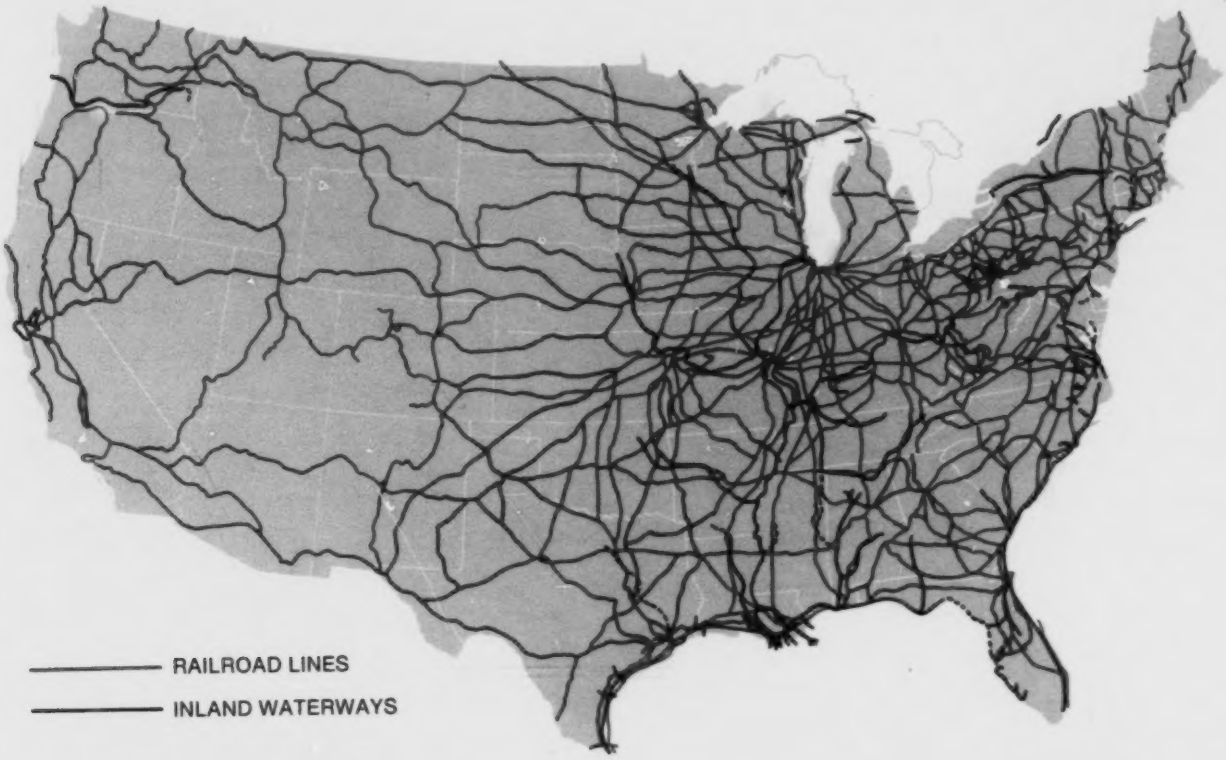


Source: U.S. Department of the Interior, U.S. Bureau of Mines, Mine Safety and Health Administration.

TABLE 6. U.S. COAL-SUPPLY DEMAND, 1980, 1985, 1990

CONSUMPTION	(million metric tons) 1980	1985	1990	1980-90 Av. Annual % Growth
Domestic Consumption				
Electric utilities	516.3	630	788	4.3
Coking coal	60.8	68	65	0.1
General industry & retail	67.2	94	133	7.1
Synfuels	-	4	9	-
TOTAL DOMESTIC CONSUMPTION	644.3	796	995	4.4
Exports				
Canada (About one-third metallurgical, two-thirds steam)	15.5	16	16	-
Overseas (metallurgical and steam)	66.0	83	109	5.1
Total exports	81.6	100	125	4.4
TOTAL CONSUMPTION—U.S. Coal	726.0	896	1,121	4.4
Supply				
U.S. production				
East	520.0	591	710	3.2
West	227.8	303	410	6.1
TOTAL U.S. PRODUCTION	747.8	895	1,120	4.1

U.S. RAIL AND WATERWAYS



Note: Totals may not add due to rounding.

Sources: 1980: U.S. Department of Energy.
1985, 1990: National Coal Association's "Looking Ahead to 1995," June 1982. Most likely case for all categories, production assumed to equal consumption.

The U.S. Railroad System

SECTION TWO

The U.S. railroad system is the largest in the world with 300,000 miles of track, 1.7 million freight cars and 28,000 locomotives. Almost all U.S. railroads are privately owned. In 1980, railroads moved 930 billion ton-miles of freight—the largest amount in their history.

During the past 6 years, the U.S. rail network has undergone a massive rehabilitation program, in part because of favorable changes in government policies. Track rebuilding has been the focal point of these efforts, with rail and tie replacements running 60 percent ahead of the pace 10 years earlier. More freight cars and locomotives were added in 1979 and 1980 than in any 2 years since the 1950s.

Much of this recent railroad resurgence and renewed financial support for the industry is related to the fact that U.S. railroads can profitably handle much greater volumes of coal production on existing tracks.

Coal is the railroads' biggest source of freight revenue. In 1980, coal represented 35 percent of all freight tonnage moved by the railroads—more than three times the volume of the next leading commodity, farm products. Although the rates for moving coal are considerably lower than most other rail rates because of the efficiencies in transporting bulk goods by volume, coal revenues still represent 18 percent of all rail income—again, far ahead of the next biggest commodity group.

Coal hauling is also one of the fastest growing services provided by U.S. railroads. In the past 10 years, total rail coal traffic has grown by 180 million tons or 47 percent. Two-thirds of this increase has taken place since 1978. Rail export coal has increased by 54 million tons or 95 percent since 1971—all of this increase occurred in the past 3 years.

Most of the expansion in coal traffic has occurred in the western United States where rail coal tonnage has nearly quadrupled in 10 years. Today, western railroads account for 35 percent of all rail coal tonnage. In the South, coal traffic has advanced modestly, while coal traffic in the East has remained stable over the last 10 years.

Despite these rather startling growth figures, the railroads have had few problems keeping pace with increased coal production. Freight cars can be manufactured and rail lines upgraded faster than new mines can be opened. Now that railroads have the ability to offer contract coal rates for the first time in their history, accommodating new business, planning for needed investments, and meeting shippers' requirements have been greatly facilitated.

Given the profitability of coal traffic, the railroads have been able to raise the capital necessary for coal cars and track upgrading through private sources despite the worldwide shortage of capital.

During the 1970s, over $5 billion was invested in rail facilities just to improve coal hauling capacity. While this sum pales in the face of the investment required for constructing new forms of coal transport, it was a massive bet on the future of coal. Naturally, these improvements could not have been undertaken without higher rates to pay for those investments and to offset general inflation in operating costs.

The United States also changed its system of economic regulation of rail transportation in 1980. The new system is

much more reflective of the strongly competitive environment in transportation today—both among different forms of transport, such as barges, trucks, and railways, and between railroads themselves.

There are four points about these changes to be considered. They increased competition among railroads; they facilitate long-term contracts; coal rates have risen less under the new system than they did in the years just before they were installed; and rail coal rates are regularly reviewed by the Federal Government and can still be reduced if they get too high.

U.S. railroads can handle even the most optimistic projections of increases in export coal over the next two decades. It sees no unmanageable problems in equipment, track, or loading facilities as long as the business has some degree of predictability. Its record in meeting the large increases in domestic coal movements and the unexpected surge in export coal over the past 4 years testifies to the railroads' abilities.

U.S. River Transportation

SECTION THREE

The U.S. barge transportation industry operates over 4,500 towboats and about 30,000 open and covered barges. It services all the navigable inland rivers and canals of the United States, presenting an integrated waterways system of over 11,170 kilometers. The Ohio and the Mississippi Rivers are the backbone of the system and are fed by other major tributaries which stretch to the rich coal-producing areas of the country.

One fast-growing area for exports is the Illinois Basin. A great deal of attention has been focused on Illinois Basin coal, which is found in Illinois, Indiana, and the western area of Kentucky. The coal mined from this part of the country includes metallurgical and high- and low-quality steam coal. It is readily accessible to economical and efficient handling by river transportation with direct access to ports on the Gulf Coast.

The barge transportation industry is capable of handling the quantities of coal expected to be transported for export. On an industry basis, inland river barge companies last year handled over 490 million metric tons of freight made up of grain, chemicals, iron and steel articles, petroleum products, building materials, and coal. Of this total tonnage, over 20 percent or almost 100 million metric tons was coal.

Last year, over 24 million metric tons of coal was delivered to Gulf Coast ports. The major portion arrived by barge. Major U.S. barge lines have enough equipment today to handle an additional 40 million metric tons of coal for exports. The availability and capacity of this equipment ensures reliability of transportation. Of special importance is that this availability assures competitive pricing.

As the world community continues to increase its consumption of coal, the U.S. barge transportation industry has the capability to keep pace with these growing demands. At present, the U.S. barge industry has excess transportation capacity standing by in anticipation of increases in production, consumption, and exports of coal.

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U.S. Coal Ports

SECTION FOUR

In the past, U.S. waterborne coal exports were handled routinely and without noticeable difficulty at its major coastal loading ports. Seventy-five to 80 percent of its overseas shipments moved through the Hampton Roads complex alone. Beginning in the fall of 1979, that changed with the dramatic and seemingly continuous upsurge in demand for U.S. steam coal. From a mere 280,000 metric tons (311,000 short) in 1978, U.S. overseas steam coal exports jumped to 2.3 million metric tons (2.5 short) in 1979, to 14.5 million metric tons (16.0 short) in 1980, and to a record 30.0 million metric tons (32.9 short) in 1981. Unusually heavy demand for U.S. steam coal pushed exports to an unprecedented 66.3 million metric tons (72.8 short) in 1980 and 84.5 million metric tons (92.4 short) in 1981. That enormous tonnage stretched the U.S. coal loading system to the apparent limit of its physical capacity, producing long lines of colliers, lengthy vessel delays, and millions of dollars in vessel demurrage. The U.S. coal port crisis evoked a great outpouring of alarm in 1980, accompanied by warnings that if something were not done quickly, the United States would lose out in the international competition for what most agreed was an unprecedented market opportunity.

The U.S. port system has proven to be markedly resilient and capable of doing much more than even its harshest critics predicted. Last year coal was loaded for export at Camden, New Jersey; New York, New York; Morehead City, North Carolina; Albany, New York; Charleston, South Carolina; Savannah, Georgia; and Stockton, California—ports that hitherto had not been active in coal trade.

Midstream loading operations and reactivation of the public bulk terminal at the Port of New Orleans combined to nearly quadruple the export coal tonnage moving out of the lower Mississippi River and pushed New Orleans into second place, just behind Hampton Roads as the leading port of exit for U.S. export coal.

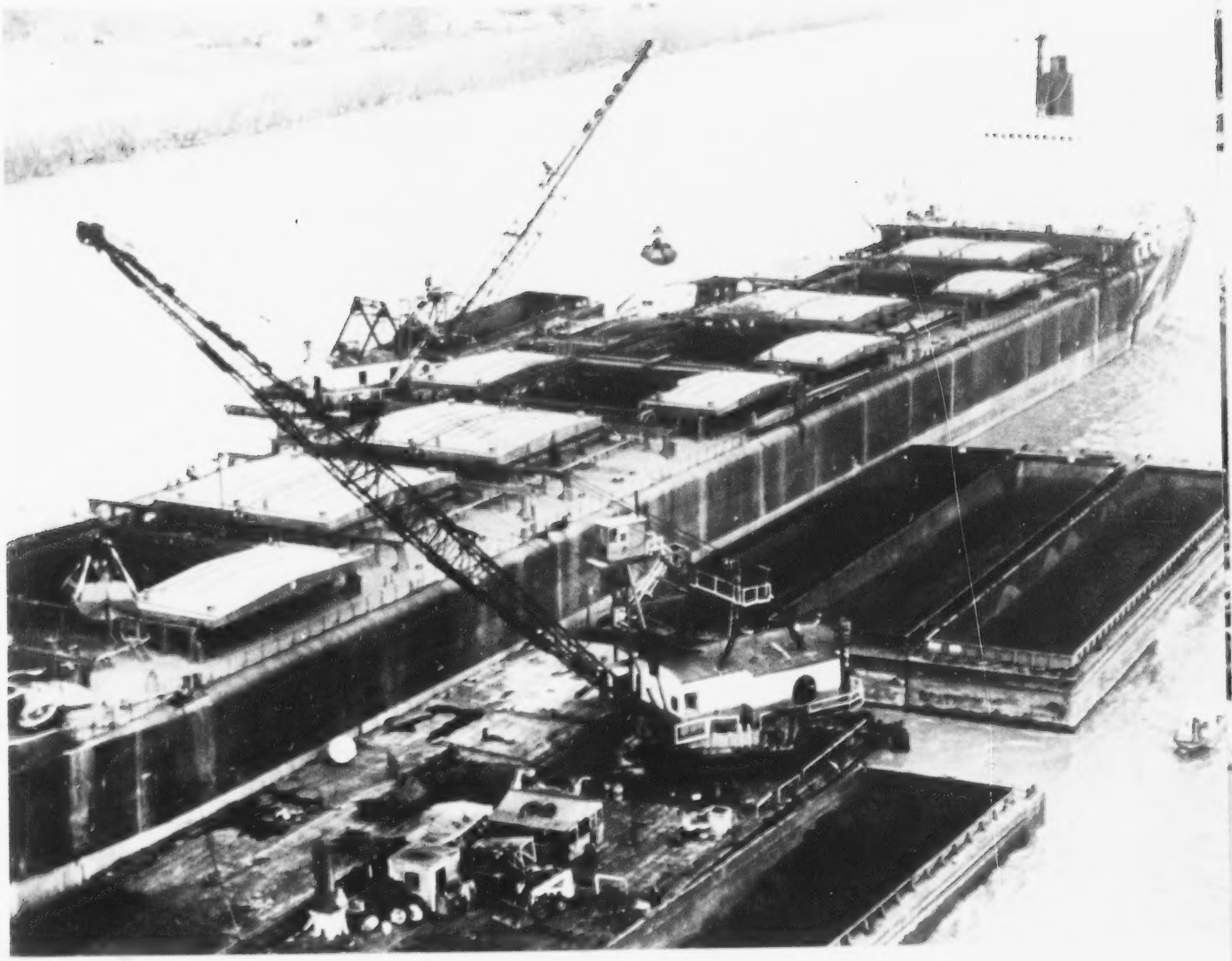
Additionally, the Great Lakes-St. Lawrence Seaway system represents an all-water route to the heartlands of the United States. The system, from its most inland ports at Duluth-Superior to its ocean reaches in the Gulf of St. Lawrence, offers unprecedented options for cargo movement. For coal, the system offers an almost unlimited variety of coal sources, rail connections, direct shipments, and vessel transshipments. In fact, the largest single cargo load of coal ever to move out of a North American port—150,000 metric tons (165,000 short)—was transshipped through the Canadian port of Sept Iles enroute to Japan.

Managerial innovations, including the implementation of loading and berthing contracts, helped to boost tonnage loaded at Hampton Roads and Baltimore, sharply cutting vessel waiting times and demurrage penalties.

Since 1980, nearly 57 major coal terminal projects have been announced or proposed at U.S. ports on the Atlantic, Gulf, and Pacific Coasts, including Alaska.

The U.S. West Coast has a number of sites which could handle deep-draft shipping in the natural deep water of Puget Sound and in dredged channels at Long Beach and Los Angeles, California, and elsewhere. In fact, both the Long Beach and Los Angeles ports are committed to privately financed dredging programs that will give them the capacity to handle deep-draft vessels.

Overall, existing U.S. coal loading capacity (including the Great Lakes) is estimated by the U.S. Maritime Admin-



istration to total 146.0 million metric tons (160.4 short), with an additional capacity of 131.5 million metric tons (144.5 short) under construction, and 292.0 million metric tons (319.7 short) proposed or planned. While the current depressed state of the overseas coal market, the high cost of money, and various other factors have slowed the pace somewhat, substantial progress has been made. The U.S. port and coal industries have responded vigorously to the call for major improvement in the capability of the U.S. coal export system.

Coal Mining Regulation

SECTION FIVE

The United States has an enormous amount of coal. The total identifiable coal resource base is estimated to be 1.7 trillion metric tons. Of this, 438 billion metric tons have been identified to have sufficient economic prospects to be included in the reserve category. Most of the 202 billion tons of coal reserves in the eastern United States is in private ownership. Much of the western coal is on Federal lands, but it is being made available for lease by private coal producers.

The passage of the Federal Surface Mining Act provided for the establishment of the U.S. Office of Surface Mining Reclamation and Enforcement (OSM). The Act applies to all surface coal mining and the surface effects of underground coal mining. The OSM approves State programs, approves some exploration and mining plans, and provides assistance to the States as they implement their own surface mining programs. The OSM is also responsible for ensuring reclamation of abandoned coal mine areas. The provisions of the Surface Mining Act apply to all coal mining on both Federal and non-Federal lands.

During the 10 years prior to 1981, no Federal leases for new mines were granted by the U.S. Department of the Interior. In the first year of President Reagan's Administration, the total acreage leased for coal was increased from 8,465 acres (3,436 hectares) to 44,000 acres (17,800 hectares). The amount of coal sold from Federal lands was increased by 235 percent or approximately 303 million metric tons. The first competitive leases in a decade for new mines in Alabama, Utah, Colorado, and Wyoming were issued. Last spring the Department held the largest coal lease sale in the history of America—almost 2.25 billion tons in the Powder River Basin of Wyoming and Montana. That is five times larger than the previous record Federal lease sale. The Department plans to hold 11 more lease sales over the next 5 years.

The Bureau of Land Management, within the U.S. Department of the Interior, recently revised the regulations which govern the availability of coal to be leased. The revisions reflect a more market-oriented approach and streamline the entire Federal coal leasing process. A major aspect of the revised regulations provides the public and industry with the opportunity to submit indications of leasing interest and information on the potential for coal resource development for specific lands. The result will be enhanced competition by the reduction of government regulation and increased opportunity for the coal industry to participate in the process for determining which lands should be leased. Unnecessary and duplicative requirements will be eliminated, which will lead to considerable savings to both the Federal Government and the coal industry. Since the streamlined rules will be in effect for the planned lease sales, much more coal should be available for export from Federal lands.

While the Department neither encourages nor discourages foreign investment in U.S. coal mining activities, interested foreign investors from nations with reciprocal trade relations may participate in coal mining activities on Federal lands through the medium of a U.S. industry. The Federal Mineral Leasing Act does prohibit outright ownership of coal leases by foreign investors; however, foreign investors may invest in a U.S. company that holds a Federal lease.

Additionally, the U.S. Department of the Interior is cooperating with other Federal agencies through the auspices of the Coal Interagency Working Group to eliminate, to the maximum degree possible, the impediments to rapid, efficient coal export.

The changes initiated by President Reagan's Administration will ensure the availability of a reliable, nearly unlimited supply of coal, at a competitive price, for the export market.

Quality Control

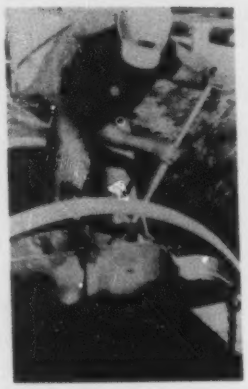
SECTION SIX

The need for accurate samples at the moment title transfers from seller to buyer is essential in the commerce of coal. When coal is sold f.o.b. vessel, accurate sampling is needed when the coal is loaded aboard the collier. The progress that has been made toward this objective is thus a matter of prime importance to the buyer.

The expanded coal terminal facilities that have been or are being built around the United States to accommodate increased export coal traffic all handle coal by means of high-speed, high-capacity conveyor systems, and all of them are being equipped with mechanical sampling systems.

Accurate measurement of quality in a bulk material like coal is both difficult and complex. Both the International Standards Organization Technical Committee 27 and ASTM Committee D-05 are currently working on new standards for mechanical sampling capacity conveyor systems.

Accurate sampling as title transfers from the seller to the buyer does not comprise the whole of a quality control system. A full-fledged quality control system will provide control from originating mine to vessel hold. Several major U.S. coal companies have instituted quality assurance programs that involve extensive sampling up-stream of port facilities to achieve control at the source, that is, at the producing mine.



Some major coal companies handle only coal produced at their own mines, others buy some outside coal mined by independent mine operators, some will broker coal produced by others, and at least one establishes an agency relationship, acting as a representative of the independent mine operator. Implementation of effective quality assurance programs to accommodate these variations obviously involves variation in detail. One major coal company that purchases coal from independent operators now requires all sampling to be performed mechanically or with mechanical aids.

However, in the overall scheme of things, mechanical sampling and manual sampling should be considered as complementary to each other and be used in combinations to fulfill all the needs of a comprehensive quality assurance system.

A major step forward has been made in the United States in quality control supervision with the emergence of national accreditation now being provided by the American Association for Laboratory Accreditation (AALA). AALA accredits testing laboratories by discipline rather than by product or individual test procedure. Thus everything the laboratory does is included in AALA accreditation.

The coal testing laboratory is accredited under the chemical testing discipline. To receive accreditation, the laboratory must meet rigid standards with regard to organization, qualifications of staff, facilities, and operating practices including exacting quality assurance requirements. The laboratory must maintain a book of standard operating procedures and have a qualifications manual. The process of accreditation involves a rigorous on-site inspection covering every detail of its operations, its facilities, and its staff.

One of the areas where the buyer can directly implement improvement is in the writing of coal quality specifications. Ambiguous quality specifications, even though seldom recognized as such, are the real source of many disputes between buyer and seller.

Better sampling and control, coupled with better supervision and better specifications, provide a much greater certainty of value received.